

Application No. 10/827,324  
Amendment After Final Rejection dated October 11, 2006  
Office Action of September 12, 2006

REMARKS

Claims 1-25 are currently pending in this application. Claims 1-9 and 11-22 have been withdrawn from active prosecution. Claims 10 and 23-25, each of which being in independent form and having been amended herein, are in active prosecution. The amendments have been introduced to more clearly specify that the inventive compositions cure anaerobically at room temperature and to provide proper Markush language, where appropriate.

Applicants turn now to the merits of the Action.

Response to 35 U.S.C. § 112, 2<sup>¶</sup>, Rejection

Claims 10 and 23-25 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite, in particular with regard to the use of the phrase "anaerobic cure-inducing composition". Applicants traverse this Section 112 rejection.

A search of the U.S. Patent and Trademark Office website as of October 4, 2006 shows at least 8 U.S. patents (i.e., U.S. Patent Nos. 6,043,327; 6,150,479; 6,342,545; 6,451,948; 6,583,289; and 6,723,763) that use that phrase in at least one of their claims and at least 2 additional U.S. patents (i.e., U.S. Patent Nos. 6,391,993 and 6,460,464) use the phrase

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"anaerobic cure-inducing component" in at least one of their claims.

Thus, on at least 10 separate occasions the U.S. Patent and Trademark Office has been of the opinion that the objected to phrase is indeed definite. And Applicants refer in the specification to components that make up the objected to phrase. (Specification, ¶¶ [0056]-[0059].) Therefore, Applicants request that the Examiner reconsider his determination and withdraw the Section 112 rejection.

Response to 35 U.S.C. §§ 102 and 103 Rejections:

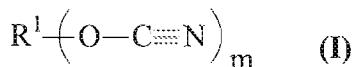
Ikeguchi

Claims 10 and 23-25 continue to stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by, or in the alternative under 35 U.S.C. § 103(a) as allegedly being obvious over, U.S. Patent No. 4,373,086 (Ikeguchi). Applicants traverse this determination.

As a review for the Examiner, Applicants set forth various aspects of the invention as claimed.

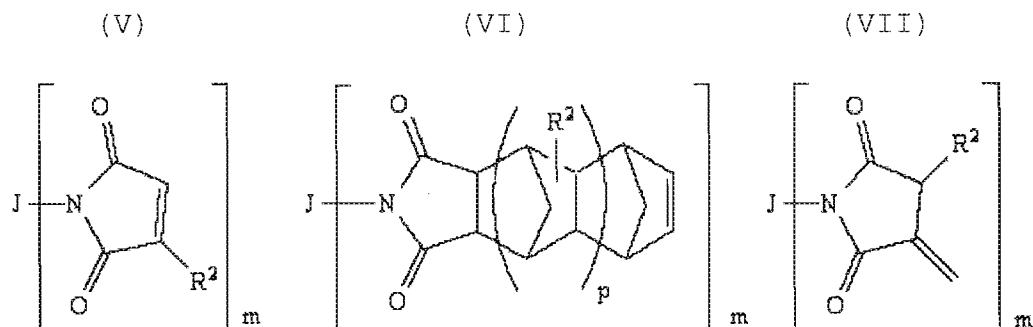
In one aspect, the invention as defined by independent Claim 10 provides an anaerobically curable composition. The composition, which cures when exposed to anaerobic conditions, includes:

(a) a cyanate ester compound having the structure of formula I:



where m is from 2 to 5 and  $R^1$  is an aromatic nucleus-containing residue;

(b) a (meth)acrylate monomer;  
(c) one or more maleimides, nadimides or itaconimides selected from the following structures:



where m is 1-15, p is 0-15,  $R^2$  is independently selected from hydrogen or lower alkyl, and J is independently selected from a monovalent or a polyvalent moiety comprising organic or organosiloxane radicals, and combinations thereof; and

(d) an anaerobic cure-inducing composition.

The composition is free of added metallic catalyst and cures at room temperature when placed between two surfaces such that an anaerobic environment is created in the area between the two

surfaces, at least one of which surfaces having an active metallic surface.

In another aspect, the invention as defined by Claim 23 provides a method of providing a multi-staging curable composition to obtain increased thermal resistance. The method includes the steps of

- (a) combining an anaerobically curable monomer, curing at ambient temperature;
- (b) a second curable component comprising a cyanate ester;
- (c) a third curable component comprising a maleimide which cures at about 200°C or more and which imparts heat-aged strength retention at 600°C;
- (d) an anaerobic cure-inducing composition; and
- (e) an inorganic filler.

The curable composition so formed is free of added metallic catalyst and cures at room temperature when placed between two surfaces such that an anaerobic environment is created in the area between the two surfaces, at least one of which surfaces having an active metallic surface.

In yet another aspect, the invention as defined by Claim 24 provides a curable composition for obtaining increased

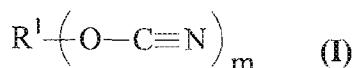
thermal resistance and heat-aged strength retention. The composition includes:

- (a) an anaerobically curable monomer;
- (b) a cyanate ester;
- (c) a maleimide; and
- (d) an anaerobic cure-inducing composition.

The curable composition is free of added metallic catalyst and cures at room temperature when placed between two surfaces such that an anaerobic environment is created in the area between the two surfaces, at least one of which surfaces having an active metallic surface.

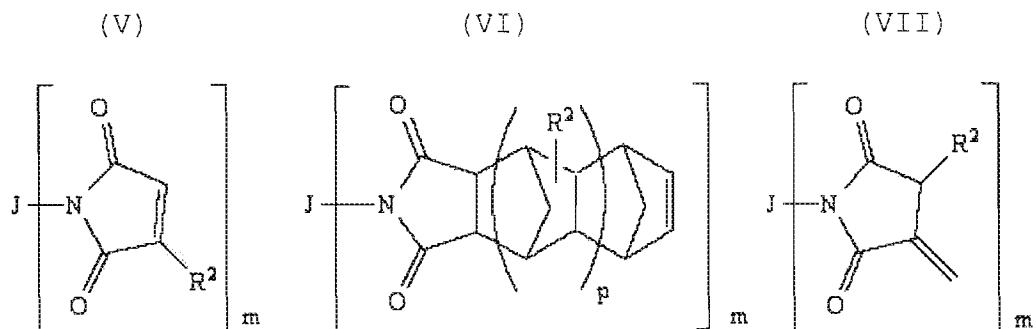
In still another aspect, the invention as defined by Claim 25 provides an anaerobically curable composition. The composition includes:

- (a) a cyanate ester compound having the structure of formula I:



where m is from 2 to 5 and R<sup>1</sup> is an aromatic nucleus-containing residue;

- (b) a (meth)acrylate monomer;
- (c) one or more maleimides, nadimides or itaconimides selected from the following structures:



where m is 1-15, p is 0-15, each R<sup>2</sup> is independently selected from hydrogen or lower alkyl, and J is a monovalent or a polyvalent moiety comprising organic or organosiloxane radicals, and combinations of two or more thereof, and the composition is free of added metallic catalyst; and

(d) an anaerobic cure-inducing composition.

The curable composition cures at room temperature when placed between two surfaces such that an anaerobic environment is created in the area between the two surfaces, at least one of which surfaces having an active metallic surface.

In the Action, the Examiner indicates that Applicants' Amendment dated July 10, 2006 has been considered but the position advocated therein is not convincing. More specifically, the Examiner states at page 4:

Applicant is merely claiming a composition or a method of making the composition by combining the ingredients. Applicant does not require any particular cure be actually performed. Applicant is not claiming a method of curing at room temperature. Only the inherent ability to

room temperature cure on a metal substrate is required. An anticipatory reference need not recognize this ability (citation omitted).

The Examiner's conclusion in this quoted paragraph misses the boat.

First, the Examiner's position in the first two sentences of the quoted passage ignores the body of technology that has developed in the field of anaerobic adhesive compositions. (See e.g. Specification, ¶¶ [0003]-[0004].) Many U.S. patents are directed to and claim anaerobically curable compositions, without claiming the cured reaction product. For instance, see U.S. Patent Nos. 6,043,327; 6,150,479; 6,342,545; 6,451,948; 6,583,289; and 6,723,763.

Second, the Examiner's position about inherency is misplaced, as discussed in more detail below.

Third, the Examiner's position about anticipation is likewise misplaced

As it relates to Ikeguchi, the Examiner again contends that "Ikeguchi suggests curable compositions of polyfunctional cyanate esters, a polyfunctional acrylate and a polyfunctional maleimide." (Action, at page 2.) The Examiner further contends that the compositions of Ikeguchi "inherently must have room temperature curability if placed between metal surfaces, because

his composition corresponds to that claimed by applicant."

(Id.)

The Examiner's contentions are wrong since they fail to recognize Applicants' introduction of an anaerobic cure-inducing composition to the composition, without which anaerobic cure would not occur as the Examiner has concluded.

Applicants' amendments to Claims 10 and 23-25 specify with more particularity the mechanism by which the inventive compositions cure -- that is, by way of an anaerobic mechanism. Anaerobic adhesives -- that is, compositions curable under anaerobic conditions and perform as adhesives -- are well known, and their cure mechanism involves several components -- e.g., an initiator, an activator and stabilizer. The specification speaks to these components and provides illustrative examples thereof. (Specification, ¶¶ [0056] - [0059] and Examples 1, 3 and 15.) These components when combined together represent the anaerobic cure-inducing composition.

Ikeguchi fails to disclose, teach or suggest the inclusion of an anaerobic cure-inducing composition, as well as compositions that cure at room temperature when placed between surfaces such that an anaerobic environment is created in the area between the two surfaces, at least one of which is metallic. In contrast, the compositions of Ikeguchi require at

least heat for curing. In fact, at Col. 8, lines 28-30, a temperature of 100°-250°C is noted as that heat curing temperature. All of the examples of Ikeguchi employ heat and a metal catalyst for curing. Example 1 uses heat (at temperatures of 160°C and 175°C) and a zinc octoate catalyst to cure the composition. (Col. 8; lines 57-67.) Example 2 uses the same process for curing as Example 1. (Col. 9; lines 14-15.) Example 3 similarly uses heat (at temperatures of 170°C and 195°C) and a zinc octoate catalyst to cure. (Col. 9; lines 36-55.) Nowhere in Ikeguchi are room temperature curing compositions, which cure anaerobically when placed between two surfaces, at least one of which is metallic, disclosed, taught or even suggested. Moreover and significantly, nowhere in Ikeguchi are anaerobic cure-inducing compositions or the components thereof disclosed, taught or even suggested.

It is well settled that to be an effective anticipatory reference, a cited document must disclose each and every limitation recited in a claim under examination. Failing such precise disclosure, such a cited document must fail as an anticipatory reference.

Nevertheless, the Examiner contends that Ikeguchi "inherently" discloses the compositions defined by Applicants' invention. However, as the Examiner is well aware, the standard

for inherency requires that the missing element must necessarily be present. "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." Continental Can Co. USA, Inc. v. Monsanto Co., 948 F.2d 1264, 1268-69 (Fed. Cir. 1991) (citations omitted).

Here, Ikeguchi is utterly silent as to anaerobically curable compositions, the inclusion of an anaerobic cure inducing composition to induce cure by such a mechanism, and the environment under which such cure can occur.

Therefore, Ikeguchi cannot anticipate Applicants' amended claims, even under a theory of inherency.

Moreover, there is no suggestion in Ikeguchi that its compositions cure anaerobically at room temperature when placed between two surfaces such that an anaerobic environment is created in the area between the two surfaces, at least one of which is metallic, or for Ikeguchi's compositions to include an anaerobic cure-inducing composition to induce cure by such a mechanism, or the environment under which such cure can occur. Instead, Ikeguchi specifically states that its compositions require at least heat for curing. Elimination of the heat curing requirement would result in an improper modification of Ikeguchi. See MPEP § 2143.01 ("If the proposed modification or

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combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.").

Any such modification of Ikeguchi would destroy that document for what it fairly teaches. And, moreover, that modification must have come through the use of hindsight reasoning, using Applicants' claims as a template from which to pick and choose which portions of Ikeguchi seemingly are relevant but require modification. As such, Ikeguchi also fails to suggest Applicants' amended claims and thus does not render obvious the claimed invention.

Applicants request reconsideration of the Section 102 and Section 103 rejections based on Ikeguchi.

Gaku

Claims 10 and 23-25 continue to stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by, or in the alternative under 35 U.S.C. § 103(a) as allegedly being obvious over, U.S. Patent No. 4,369,304 (Gaku). Applicants traverse this determination.

Here, the Examiner again contends that "Gaku suggests curable compositions of polyfunctional cyanate esters, an

acrylate and a polyfunctional maleimide." (Action, at Page 2.)

The Examiner further contends that the compositions of Gaku "inherently must have room temperature curability if placed between metal surfaces, because his composition corresponds to that claimed by applicant." (Id.)

The Examiner's contentions are wrong since they fail to recognize Applicants' introduction of a anaerobic cure-inducing composition to the composition, without which anaerobic cure would not occur as the Examiner has concluded.

As discussed above, Applicants' amendment to Claims 10 and 23-25 specify with more particularity that the invention as so defined is based on anaerobic cure and include an anaerobic cure-inducing composition to achieve cure at room temperature when placed between two surfaces such that an anaerobic environment is created in the area between the two surfaces, at least one of which is an active metallic surface.

Gaku does not disclose room temperature curing compositions, which cure anaerobically when placed between two surfaces at least one of which is metallic, disclosed or suggested. Moreover and significantly, nowhere in Gaku are anaerobic cure-inducing compositions or the components thereof disclosed, taught or suggested.

In the Action mailed April 10, 2006, the Examiner acknowledged that the compositions of Gaku requires heating of the composition to effect curing. Similar to the disclosure of Ikeguchi, indeed all of the examples of Gaku employ heat and a metal catalyst for cure. Example 1 uses heat (at temperatures of 150°C) and a zinc octoate catalyst to cure the composition. (Col. 6; lines 12-22.) Example 2 also uses heat (at temperatures of 60°C and 140°C) and a zinc octoate catalyst to cure the composition. (Col. 6; lines 56-62.) Example 3 similarly uses heat and a zinc octoate catalyst to cure. (Col. 7; lines 5-10.) Nowhere in Gaku are room temperature curing compositions, which cure anaerobically when placed between two surfaces at least one of which is metallic, disclosed, taught or suggested. Moreover, nowhere in Gaku is the inclusion of an anaerobic cure-inducing composition disclosed, taught or suggested.

As noted above, a cited document must disclose each and every limitation recited in a claim under examination to be an effective anticipatory reference. Failing such precise disclosure, such a cited document must fail as an anticipatory reference.

Nonetheless, the Examiner here too contends that Gaku "inherently" discloses the compositions defined by Applicants'

invention. However, as noted above, the standard for inherency requires that the missing element must necessarily be present, not that it is probably or possibly present.

Gaku like Ikeguchi is utterly silent as to anaerobically curable compositions, the inclusion of an anaerobic cure inducing composition to induce cure by such a mechanism, and the environment under which such cure can occur.

Therefore, Gaku cannot anticipate Applicants' amended claims, even under a theory of inherency.

Moreover, there is no suggestion in Gaku that its compositions cure anaerobically at room temperature when placed between two surfaces such that an anaerobic environment is created in the area between the two surfaces, at least one of which is metallic. Gaku specifically states that its compositions require at least heat for curing. Elimination of the heat curing requirement would result in an improper modification of Gaku and destroy it for what it fairly teaches. See MPEP § 2143.01.

Any such modification of Gaku must have come through the use of hindsight reasoning, using Applicants' claims as a template from which to pick and choose which portions of Gaku seemingly are relevant but require modification. As such, Gaku also fails to suggest Applicants' amended claims.

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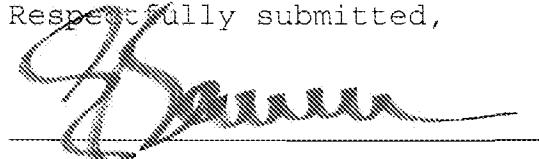
Applicants respectfully request reconsideration of the Section 102 and Section 103 rejections based on Gaku.

In view of the above, Applicants respectfully submit that the application is in condition for allowance.

In any event, this paper in any event represents an earnest attempt at advancing prosecution on the merits, and thus respectfully submits that entry thereof is proper and at a minimum helps to focus the issues for appeal.

Applicants' undersigned attorney may be reached by telephone at (860) 571-5001, by facsimile at (860) 571-5028 or by e-mail at steve.bauman@us.henkel.com. All correspondence should be directed to the address given below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "S. Bauman". It is written in a cursive style with a vertical line extending downwards from the end of the signature.

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